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Iowa Dept of Environmental Quality, Des Moines

1976

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16. ABSTRACT

Activities of the Iowa Department of Environmental Quality are highlighted in its annual report for 1975-76. Topics covered are Organization, Emergencies, Programs, Monitoring, Rules, Permits, Enforcement and Regional Offices.

17. KEY WORDS AND DOCUMENT ANALYSIS

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IOWA DEPARTMENT OF ENVIRONMENTAL QUALITY: '75-'76

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HIGHLIGHTS

Construction was completed at twenty-five (25) wastewater treatment plants. (p. 11)

Thirty-nine (39) communities that do not presently have wastewater treatment facilities received grants from the U.S. Environmental Protection Agency to help pay the costs of construction. (p. 11)

Over $74 million in Federal construction grant funds were awarded to Iowa municipalities. (p. 12)

The state was covered by a thick blanket of smog. (p. 2)

Odor control regulations were recommended by an Odor Control Advisory Committee. (p. 5)

Ann Frenzen of Cedar Rapids was appointed by Governor Ray to serve on the Solid Waste Disposal Commission. (opposite p. 1)

A study found that 90-95% of the radium in ground water can be removed by some treatment methods presently in use. (p. 9)

Used crankcase oil gained new life in central Iowa. (p. 7)

Fall leaf burning was found to be an air pollution culprit. (p. 4)

Empty pesticide containers became valuable resources for many service organizations. (p. 7)

Legislation aimed toward better protection of public health through safe drinking water passed the Legislature and was approved by the Governor. (p. 8)

★★★★★

Free training courses were made available to people who wanted to learn how to operate sanitary landfills, water supply or wastewater treatment facilities. (p. 10)

Industrial wastes became industrial resources as an Industrial Waste Information Exchange program came into being. (p. 8)

Governor Ray named Keith Bridson, Beverly Everett, Domenic Morrow, Harris Seidel and Vernon Spilker to serve on the Operator Certification Board. (p. 10)

City, county, state and industry air pollution control personnel became even better "smoke readers." (p. 6)

At least 200 cars and trucks started putting out cleaner exhaust. (p. 6)

Less livestock were poisoned by agricultural chemicals this year than last year. (p. 6)

Older Iowans "found" 2000 public water supply sources. (p. 9)

Per capita spending for environmental programs increased. (inside back cover)

Spills involving hazardous materials occurred at 75 locations across the state. (p. 2)

Over 2000 permits were issued for pollution control equipment or facilities. (p. 16)

Regional office staff conducted over 3000 investigations or inspections of pollution problems or control facilities. (p. 18)

1975 - 1976

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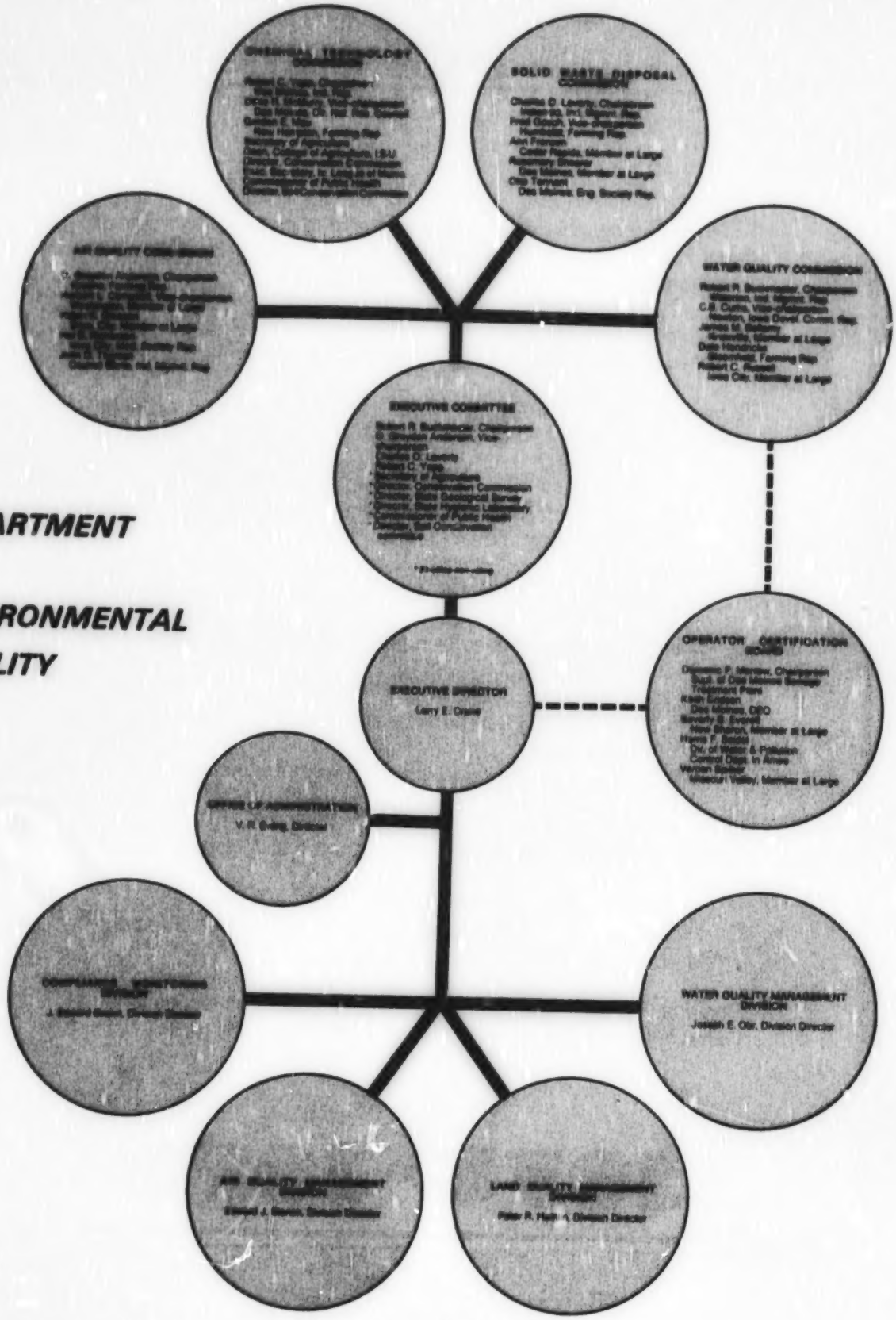

DEPARTMENT
OF
ENVIRONMENTAL
QUALITY
EXECUTIVE COMMITTEE
EXECUTIVE DIRECTOR
Larry E. Craig
OPERATOR CERTIFICATION BOARD
WATER QUALITY COMMISSION
SOLID WASTE DISPOSAL COMMISSION
OFFICE OF ADMINISTRATION
WATER QUALITY MANAGEMENT DIVISION
Joseph E. Obr, Division Director
LAND QUALITY MANAGEMENT DIVISION
Peter R. Roth, Division Director

Organization

Commissions

DEQ has four program commissions, each responsible for determining policy and for developing and conducting the programs necessary to implement the policy. Each commission has the authority to adopt standards and rules, and to initiate enforcement actions necessary for prevention or abatement of pollution within its area.

The Air, Water and Solid Waste Disposal Commissions each have five members, four of whom are appointed to four-year terms by the Governor, subject to confirmation by the Senate. The fifth member of these commissions is: a representative of the Iowa Medical Association on the Air Quality Commission, a representative of the Iowa Engineering Society on the Solid Waste Disposal Commission and a representative of the Iowa Development Commission (a state agency) on the Water Quality Commission. The Chemical Technology Commission has nine members, two of whom are appointed to four-year terms by the Governor, subject to Senate confirmation. The other seven are ex-officio; five representing state agencies, one representing Iowa State University and one representing the Iowa League of Municipalities.

Executive Committee

DEQ's **Executive Committee**, comprised of the four commission chairpersons plus six non-voting state agency director advisory members, assures program and policy coordination. The Executive Committee approves or disapproves program rules or policies, and does have the authority to promulgate administrative rules. It also deals with any inconsistencies within programs of the commissions. The Executive Committee approves all departmental legislative proposals, contracts and budgets.

The DEQ Executive Committee and Executive Director (left to right) Robert R. Buckmaster, Charles Laverty, Herbert Campbell, Larry E. Crane, and Robert C. Yapp.

Staff

DEQ's staff is headed by the Executive Director who is appointed by the Governor. The directors of the various divisions which provide the support staff for the commissions are appointed by the Executive Director.

At the end of the reporting period, June 30, 1976, the DEQ staff is comprised of 159 permanent full time positions -- an increase of 30 during the fiscal year.

Emergencies

A train derailment in which a hazardous or toxic material has spilled is one of many types of spills where DEQ offers technical advice or assistance.

Environmental emergencies arise frequently. To assure prompt and accurate response, DEQ has developed emergency response plans which delineate responsibilities, necessary contacts and recommended procedures. These response plans eliminate guesswork and help assure coordination. The following section briefly explains the types of emergencies that arose during the year and DEQ's response to them.

AIR POLLUTION ALERT

Iowa's first widespread air pollution alert began in late June, 1975, and continued intermittently throughout the summer. Stagnant atmospheric conditions prevented the dispersion of pollutants and resulted in a build-up of ground level ozone concentrations. The ground level ozone concentrations exceeded the alert level at monitoring sites around the state. Consequently, DEQ issued several air pollution advisories which notified Iowans of where the high ozone levels were being detected and requested that use of automobiles be limited in these areas as automobile emissions are a significant contributor to high ozone concentrations.

To assist in determining the cause of high ozone levels experienced in the state during the past year, DEQ has contracted to have a special hydrocarbon emission study conducted. Hydrocarbons were selected because, in combination with nitrogen oxides and sunlight, hydrocarbons in the ambient air result in the production of ground level ozone. Special emphasis will be placed on hydrocarbon emissions from motor vehicles to assess the impact of these emissions on the ambient ozone levels in the state. The study will include recommendations on control strategies.

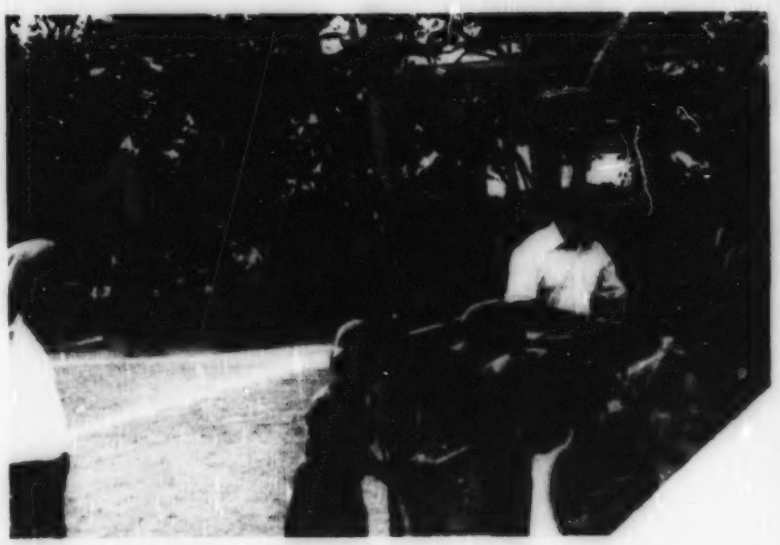
HAZARDOUS MATERIAL SPILLS

Spills of hazardous or toxic materials have the potential of causing critical situations in which the air, surface water, ground water or the land can become contaminated. DEQ does not have the authority to require that spills be reported nor does DEQ have the authority to require that spills be cleaned up. Nonetheless, the majority of spills that do occur in the state are reported to DEQ, some more promptly than others. Usually DEQ is notified because the owner of the spilled material or local officials want DEQ's technical advice or assistance.

During the past year, DEQ received seventy-five (75) reports of spills which involved 187,752 gallons of potentially hazardous material. DEQ provided technical advice and/or actual field assistance in all cases. The accompanying map shows the locations of the spills and the types of materials involved.

RADIOACTIVE MATERIAL RELEASE

One incident of a radioactive material release to the environment occurred during the year. This release, deemed minor according to U.S. Nuclear Regulatory Commission standards, occurred at the Quad Cities Nuclear Power Plant when a calculation error caused a discharge from the chemical waste sample tank to be of a higher concentration than called for. The effect on the environment was found to be insignificant.



PESTICIDE FIRES

Fires on farms or other locations where agricultural products are stored present special problems because pesticides are or can be involved. DEQ's program to assist in pesticide fires has three segments; one is designed to ensure that fire fighters are aware of safety hazards, safe methods of fire fighting; the second is to assure proper clean-up and decontamination of the fire area and the third is to provide for suitable disposal of the debris and contaminated materials.

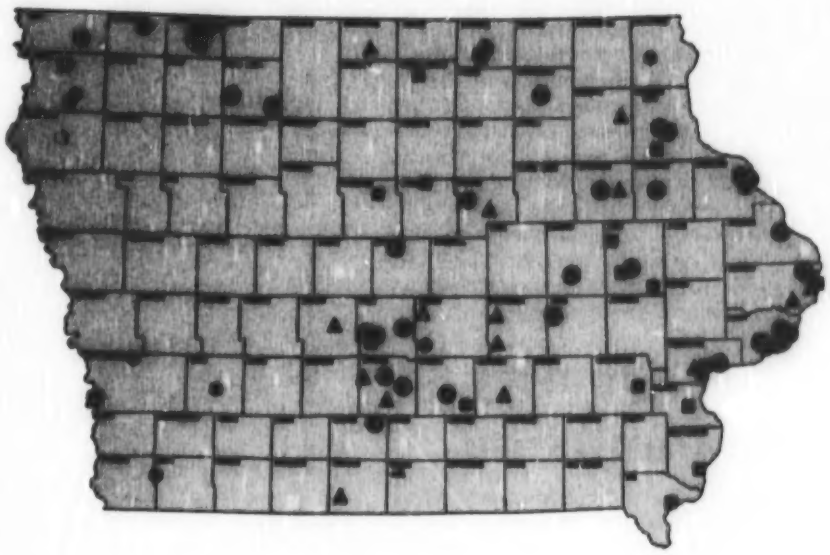
The area where a fire involving pesticides occurred requires special clean-up and decontamination. DEQ works with local people to make sure this takes place and that the people involved are well protected. DEQ's assistance includes such things as helping locate safety equipment and acceptable decontamination materials, and actual on-site assistance.

Disposal of the contaminated debris presents a particular problem. Not all solid waste disposal sites can accept quantities of pesticides or other special materials. During the past year, DEQ surveyed all the solid waste disposal sites in the state and determined which would be acceptable for emergency disposal of obsolete pesticides including those partially destroyed during a fire. Officials responsible for the selected sites were conferred with and, in most cases, the officials agreed to their sites being designated for such use. These sites are:

Benton County Sanitary Landfill
Black Hawk County Sanitary Landfill
Cass County Sanitary Landfill
Carroll County Sanitary Landfill
Hamilton County Sanitary Landfill
Lyon County Sanitary Landfill
Marion County Sanitary Landfill
Plymouth County Sanitary Landfill
Polk County Sanitary Landfill
Sac County Sanitary Landfill
Semco County Sanitary Landfill
(serving Washington, Jefferson, and Keokuk)
Scott County Sanitary Landfill
Wapello County Sanitary Landfill
Woodbury-Sioux City County Sanitary Landfill

During the past year, fires occurred at seven sites where pesticides were stored. These sites are noted on the hazardous material spill map.

HAZARDOUS MATERIAL SPILLS IN IOWA
July 1, 1975 - June 30, 1976



● Petroleum
▲ Agriculture Chemical
● Pesticide Fire
■ Other

Programs

Rule making, monitoring and enforcement are the essential components of DEQ. These activities are each discussed in separate sections of this report. DEQ actions revolve around the on-going and special programs which involve research, innovation and problem solving. Brief explanations of these programs are given below. Additional information about some of these programs is available in brief form upon request (copy charges are required for file information)

Air Quality Commission

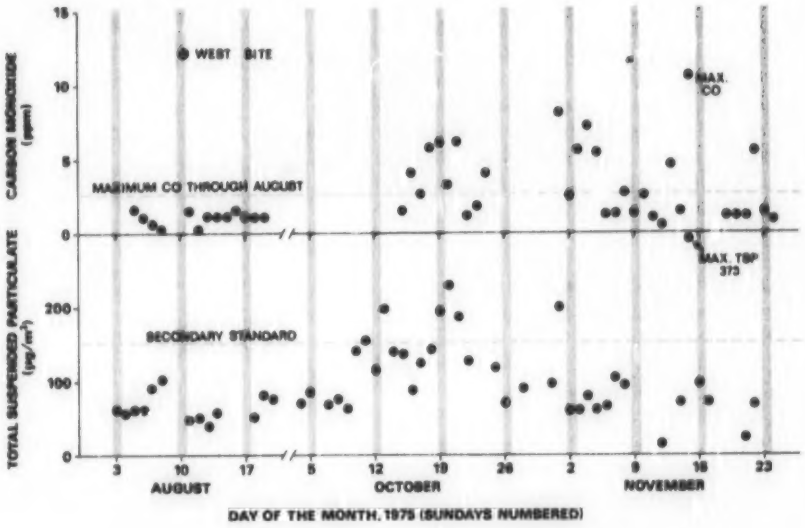
The Air Quality Commission initiated four programs during the year and work either continued or was completed on three programs.

1. What effect does the open burning of **leaves** have on the ambient air within a metropolitan community? A visual observation of Des Moines during the fall in past years indicated that the effect is significant, but no actual data existed to back up the indications. An extensive monitoring study to measure the effects was designed and completed during the reporting year.

The study was carried out in three Des Moines residential neighborhoods. Two pollutants known to be by-products of leaf burning, carbon monoxide and particulates, were selected to be monitored. Monitoring was conducted during a non-burning period and during the legal leaf burning period.

The results of the study indicate that leaf burning does significantly affect the ambient air quality in Des Moines. As shown on graph I, health standards for suspended particulates and carbon monoxide were exceeded in Des Moines during the two month legal leaf burning period.

The study also revealed, through the use of special particulate monitoring equipment, that the number of small respirable or breathable particulates increased during leaf burning. As indicated on graph II, up to 10 times as many breathable particles may be in the air on a leaf burning day as compared to a non-burning day.

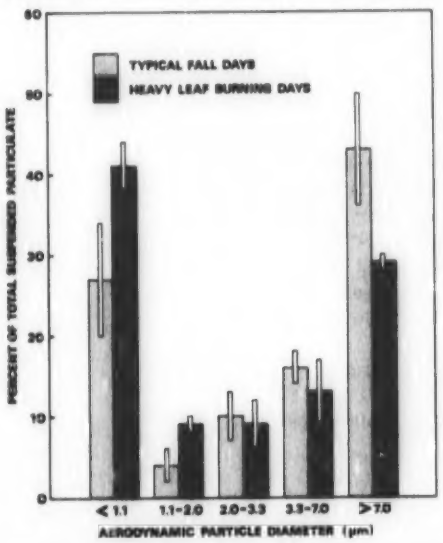


Graph I: Distribution of suspended particulate (24-hour averages) and carbon monoxide (highest 8-hour averages in each day) at the West Site for summer background and fall leaf burning periods.

One conclusion of the study was that cities such as Des Moines cannot meet the federally established health related standards while allowing leaf burning at the present levels. (Federal law does require that these standards be met.)

Presentations explaining the study procedure and demonstrating the study findings were made to city councils of all major Iowa cities following the study.

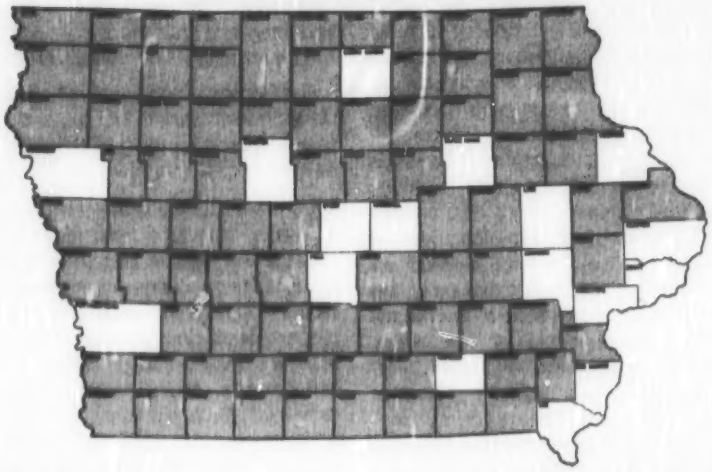
As the reporting period ended, the Air Quality Commission was in the process of considering the formulation and adoption of rules to prohibit open burning of leaves in cities where health-related particulate standards are not presently being met.



Graph II: The bar graph shows changes in particulate size distribution of suspended particulate on observed heavy leaf burning days while the vertical lines represent the deviations in the data.

2. **Seventeen counties** around the state have been designated **non-attainment areas** for suspended particulates, areas where the ambient air quality has not met the federally established standards. The U.S. Environmental Protection Agency has confirmed that five of these counties will not attain and maintain particulate standards without revised particulate control strategies. These counties are the subject of detailed analysis programs initiated to identify all sources within the areas which are contributing to the nonattainment status. Through the analyses, efforts have and will be made to isolate the most significant contributors to the pollutant levels in each county or air basin. Finding the most significant contributors will give DEQ the information needed to design control programs which will address the major causes of particulate nonattainment with the least social and economic disruption.

SEVENTEEN COUNTY NON-ATTAINMENT AREAS



The analysis tasks are accomplished through computer models. After all basic information is supplied to the computer, the computer predicts pollutant concentrations at specific sites within each air basin. These predicted results are compared with actual ambient air quality data to determine the accuracy of the predictions.

The computer information is also used in part to allow DEQ's staff to more accurately evaluate the impact of new source construction as part of the construction permit program.

To augment the air basin planning work being conducted by the DEQ staff, the Air Quality Commission approved a contract for carrying out an in-depth study of the air quality in several of the non-attainment basins or counties. The contractor will review DEQ's work and will expand upon it so that within each basin the pollutant sources contributing high levels of the pollutants exceeding the ambient standards will be better understood. This will make it possible for DEQ to design more effective and less costly control strategies.

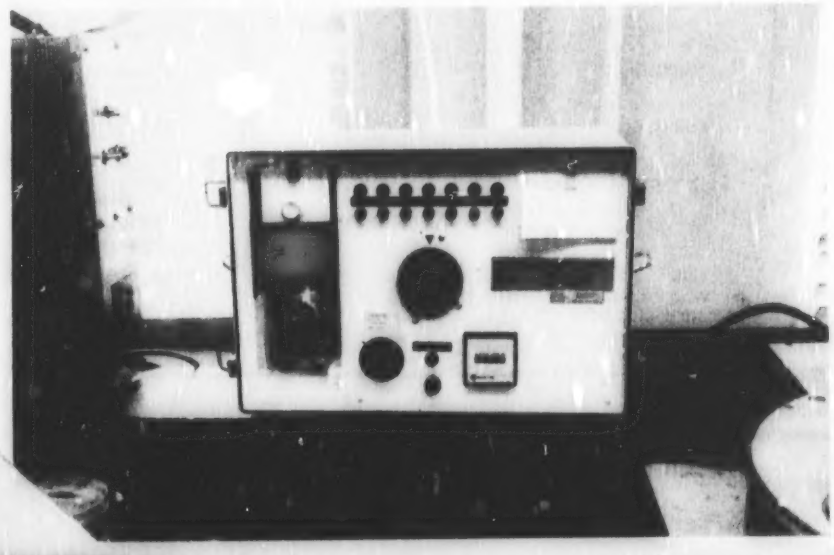
3. A third project initiated by the Air Quality Commission during the reporting period is an in-depth evaluation of the locations of the ambient air monitoring sites. Because many air program decisions are based upon the status of ambient air quality as determined by the monitoring, the quality of the data obtained is very important. An expert retained by DEQ conducted an investigation and evaluation of the monitoring sites. The contractor reviewed the placement of all existing air monitors and made recommendations regarding their placement and the placement of additional monitors. Based on the contractor's evaluation, several monitors have been relocated and new monitors have been placed at locations where important ambient data can be obtained. The map on page 14 indicates location and type of monitoring equipment.

4. In July, 1975, the Air Quality Commission appointed a 16 member Odor Control Advisory Committee to study odor problems and control methods and to develop recommendations for Commission consideration. The Committee heard presentations from speakers deemed experts in the odor measurement and control field, visited numerous odor sources, and studied various alternatives for control of odors prior to drafting recommendations for the Commission. The recommendations were completed and submitted following nine months of deliberation.

The Air Quality Commission will hold a public hearing on the proposed odor control regulations in the fall of 1976.

The members of the Odor Control Advisory Committee were:

Andrew Varley, Chairperson Public Representative
Kappie Spencer, Vice-Chairperson Public Representative
Harold Anderson, Iowa Farm Bureau
Carey Christensen, Veterinarian
Kelley Donham, University of Iowa
John Graves, Public Representative
William Hausler, State Hygienic Laboratory
Wayne Keith, Public Representative
Jack Linquist, Public Representative
Stewart Melvin, Iowa State University
Scott Olson, Cattlemen's Association
George Osborne, Pork Producers
Waclow Piecynski, City of Clinton
Jim Rissler, Greene Rendering
Dan Rockwell, Cedar Rapids Wastewater Treatment Plant
C.H. "Hib" Savery, Iowa Manufacturer's Association



5. During the 1975 fiscal year, DEQ conducted an air monitoring study designed to learn the actual effects on the ambient air of burning **high sulfur Iowa coal** in electrical generators. During the fiscal year covered by this report an evaluation of the information gathered during that study and the development of new regulations based on that information were completed. The results of the study indicate that high sulfur Iowa coal may be burned by existing facilities without exceeding the health-related ambient air quality standards for sulfur dioxide in the two areas studied, Des Moines and Ames. Based upon these findings, the Air Quality Commission adopted regulations which will permit the burning of high sulfur coal at existing facilities in many parts of Iowa. These regulations have been forwarded to the U.S. Environmental Protection Agency for review and approval.

6. The smoke generator pictured on this page is used to train DEQ's field personnel in reading or judging **visible emissions.** Air pollution control regulations require that emissions from point sources not exceed a specified opacity or density level. A person trained in "smoke reading" can judge if a stack is in compliance with that requirement. Semi-annual testing is required if the "smoke readers" are to be certified so that their readings will be acceptable court evidence. The necessary training courses were conducted during the year with DEQ personnel, local air pollution control program personnel and industry officials attending.

7. The program to control visible emissions from **motor vehicles** is the only program DEQ has to limit the emissions from automobiles. In this program, when a motor vehicle is reported to have visible emissions which exceed the limitations, DEQ notifies the owner of the vehicle. The notification asks that the problem be corrected and that the owner notify DEQ when corrections are completed.

During the past year 44 notices of violation were sent to the owners of diesel powered vehicles; 370 notices were sent to owners of gasoline powered vehicles.

Correction of the problems which result in visible emissions from motor vehicles benefits the vehicle owner in addition to reducing air pollutants. A vehicle which has visible emissions is usually not operating properly or efficiently, with resultant loss of fuel economy and increased oil consumption. Many trucking firms and individuals have expressed appreciation to DEQ for the notification that their vehicles were emitting dense smoke as the notification brought mechanical problems to their attention, usually at a time when the problem could be corrected less expensively than had it gone untended.

* The programs of the Chemical Technology and Solid Waste Disposal Commissions are intertwined, partially because the areas of jurisdiction are interrelated and partially because the Land Quality Management Division staff serves both commissions.

Chemical Technology Commission

The programs described in the following material were carried out by the Land Quality Management Division at the direction of one or both of the commissions: any programs lying solely in the jurisdiction of one commission are so noted.

Solid Waste Disposal Commission

1. The Chemical Technology Commission has a rule requiring that all practicing veterinarians report all incidents of domestic animal or **livestock poisoning** to the Veterinary Diagnostic Laboratory of Iowa State University. These incidents are then reported to DEQ by the Laboratory. The following table contains the figures compiled from the poisoning reports during the reporting period.

Both the total number of poisoning incidents and of livestock lost were lower during this reporting period than during the preceding period. The totals for the preceding period were 103 poisoning incidents and 214 animals lost.

Table I

POISIONING REPORT

July 1, 1975 - June 30, 1976

Chemical Class	Incidents	Death Loss
Organophosphate	24	69 cattle 3 poultry 3 hogs 2 dogs 1 human
Organochlorine	19	4 cattle 2 sheep 1 hog 5 dogs 1 cat 1 hawk
Arsenicals	4	15 cattle 3 dogs
1080	8	11 dogs 2 cats
Biological	2	2 dogs
Warfarin	6	4 dogs 1 cat
Other (Includes triazines, carbamates, etc.)	22	18 cattle 1 hog 1 goat garden & crop damage
Total	85	150

2. The Chemical Technology Commission selected as its highest priority during the reporting period the development of rules allowing for the disposal of paper pesticide bags by open burning in the field. The Department staff worked with the Air Quality Commission on this project. Research has been conducted on the positive and negative environmental effects of such rules and rules are in the process of being developed.

3. Three resource recovery or recycling projects were initiated in January, 1976. These are all projects which DEQ has helped initiate and is lending support to but which are being carried out by other entities.

A. The first is a **waste oil** recycling project operating in the central Iowa area only. Through the cooperation of Continental Oil Company (Conoco), Macmillan Oil Company and Willet and Company, arrangements were made for collection centers for waste crankcase oil. Because of the small volume of oil that was anticipated to be collected, arrangements were made for the oil to be used as a fugitive dust deterrent on gravel roads. Another factor working against reprocessing into reusable oil is that the nearest re-refinery is in Illinois.

The program is based on the voluntary actions of citizens who are willing to save the oil they drain from their crankcase and take it to one of the more than 25 collection points. As an additional incentive to get people involved, the cooperating companies agreed to donate part of the proceeds to charities.

During the six month period from the initiation of the project to the end of the reporting period, approximately 5,000 gallons of used oil were collected. While this is 5,000 more gallons than would have been recovered without the project, it is a small percentage of the waste oil generated in central Iowa and does not indicate that the project has been a success. The project is being continued into the next reporting period.

B. During the preceding reporting period, the Chemical Technology and Solid Waste Disposal Commissions directed the staff to investigate ways to establish a program providing for acceptable disposal of agricultural product containers, with emphasis on seeing that the containers be recycled. The staff worked with a few Future Farmers of America (FFA) groups who were interested in carrying out a container collection and recycling project.

The FFA groups that conducted collection and recycling programs the first year met with considerable success; over 40 tons of pesticide cans were collected and the groups received approximately $1,100 through the sale of the crushed containers to scrap dealers.

Following the first year's activities, the staff worked with the advisors to learn what the major obstacles or problems were and how they could be resolved. The problems identified were inadequately rinsed containers, lack of safe equipment, lack of markets, inadequate crushing equipment and lack of public knowledge of the programs.

The Chemical Technology Commission addressed the first problem, inadequately rinsed containers, by considering the adoption of rules requiring triple rinsing of all pesticide metal containers; however, the Commission decided that such a rule would be unenforceable and chose instead to pass a resolution endorsing triple rinsing.

The staff contacted scrap dealers to assist the groups in finding markets. In areas where resale of the scrap was not feasible, acceptable landfills were located so the collected cans could be disposed of properly rather than being left lying in the country side or stacked behind barns.

Industry involvement aided the project. The chemical industry loaned or donated both crushing and safety equipment. The availability of crushing equipment increased as additional manufacturers entered the market.

The chemical industry, through the Iowa Fertilizer and Chemical Association, worked with DEQ and the volunteer organizations to help spread the word on the existence of the program. One advertising method was developed through a poster contest with the winning poster being printed and circulated to agricultural product sales points across the state.

Pesticide container collection and recycling projects were carried on throughout the state last summer.

DEQ also contracted with North Iowa Area Community College (NIACC) for the performance of several tasks that helped spread the word about the project and increased the safety factors. NIACC prepared a seminar presentation for FFA advisors and other people interested in starting a pesticide container recycling project. The seminars gave information on how to organize, carry out and complete a project with emphasis on thorough preliminary work and safety features to be followed during the project.

DEQ did not get involved in every project as involvement was only by request. Consequently DEQ does not have the figures necessary to determine the success of the pesticide container recycling projects; however indications are that up to 300 tons of pesticide containers were recovered during the July, 1975, to June, 1976, period.

C. The third recycling project involves industrial wastes. With the knowledge that a material considered a waste by one industry might be a needed resource to another industry, and with the knowledge that reuse is often the best disposal method, the Land Quality Management staff worked with the Iowa Manufacturer's Association, the Iowa Development Commission and the Center for Industrial Research and Assistance (CIRAS) at Iowa State University to design a mechanism to make industrial waste exchange possible.

A program, as established through CIRAS, is based on the publication of an Industrial Waste Information Exchange newsletter circulated to all industries, large and small, across the state. The first newsletter was published in May and contained 50 entries of either for sale or wanted wastes. A second newsletter containing approximately 75 entries is anticipated in July, 1976.

Through the newsletter, industries learn of materials for sale or being sought. If interested, the industry contacts CIRAS which then arranges for communication between the buyer and seller.

Iowa's industrial waste exchange program is the first statewide program in the country. It received wide publicity and has great potential.

A law giving DEQ statutory authority to implement the Federal Safe Drinking Water Act and the Federal Water Pollution Control Act was signed by Governor Robert D. Ray on June 23, 1976.

Water Quality Commission

WATER QUALITY

The overall Water Quality program which is under the direction of the Water Quality Commission is the largest single program in DEQ. Almost half of DEQ's employees work in the Water Quality Management Division. The programs which have been selected for explanation in this section are those which most closely affect each individual in the state.

1. One special project conducted during the reporting period that affects the water quality program was a "lobbying effort". The Commission and staff worked with the General Assembly to secure passage of amendments to the DEQ law giving statutory authority to implement the Federal Safe Drinking Water Act and the Federal Water Pollution Control Act of 1972. The amendments were adopted by the General Assembly and signed into law by Governor Ray. This will enable DEQ to apply for delegation of authority from the U.S. Environmental Protection Agency to carry out the regulatory programs required by the two federal laws, avoiding the unnecessary complication of dual permit programs for Iowa industries and municipalities.

2. The **water supply** program is designed to oversee the operation and assure a quality product from the more than 800 water supply facilities that presently come under the jurisdiction of the Water Quality Commission. The program involves reviewing proposed construction and expansion programs for the actual facilities, reviewing the operation and maintenance, and requiring that periodic samples be submitted to assess the quality of the actual product - the drinking water.

All water supply facilities under the jurisdiction of the water supply program are required to submit sample results monthly, the required number determined by the types of facility, the source of the water and the size of the population served. The number of sample results varies from 2 to 150 per month with the total submitted during the reporting period exceeding 30,000.

When the samples from a supply indicate that the quality of the drinking water does not meet health standards, the officials of the supply are notified; additional sampling is required and DEQ works closely with the officials to locate and control the problem. As many as 100 of the 800 regulated water supplies in the state had samples which indicated unsatisfactory quality at some time during the reporting period. The follow-up described above was performed in all cases.

3. A special project related to the water supply protection program was completed during the reporting period. This project, conducted by a group of older Iowans and supported by a grant from the Commission on the Aging, was a survey to identify all the water supplies providing water to the public but not currently regulated by the Department. This survey was made necessary by the passage of the Federal Safe Drinking Water Act, Public Law 93-523, which requires that all supplies providing water to the public be regulated. The previous Iowa law has required that only municipal and water district owned supplies be regulated.

The results of the survey indicate that an additional 2,000 supplies will come under the jurisdiction of the regulatory program. These 2,000 supplies serve such places as mobile home parks, housing sub-divisions, schools, motels, restaurants, camp grounds and other public accommodations.

Before a water sample is taken from this water source, the faucet is heated with a butane torch to minimize contamination of the sample.

4. Another speical project related to water supplies completed during the past year was undertaken to determine the radium *removal* effectiveness of various methods of water supply treatment. Some degree of radium can be found in almost any water supply source. Long term ingestion of water containing high radium levels may result in a higher incidence of bone cancer in the exposed population. To prevent the long term exposure, consideration is being given to requiring radium removal during treatment, but information on removal technics and efficiency is limited. A special study, funded by the U.S. Environmental Protection Agency, was carried out comparing the radium removal efficiency of nine Iowa treatment facilities, using five different treatment methods. The study found that radium removal is possible and that three methods - sodium ion exchange, lime softening and reverse osmosis - remove 90 to 95% of the radium.

5. A study of industrial waste disposal and the effect on ground and surface waters from chemical solid wastes was conducted in Charles City. The study was a joint effort by DEQ, the Iowa Geological Survey, the State Hygienic Laboratory and the industry producing the waste. The intent of the study was to determine the impact of the existing disposal operation and to determine if procedures for proper closure of the site should be instituted. Sampling from bedrock wells extending to the Cedar Valley aquifer, the alluvial aquifer and the Cedar River was performed to determine the extent and magnitude of the contamination to the water resources from the existing operation. Monitoring of the bedrock wells is being continued while final plans are being prepared for ultimate dispostion of the waste materials.

6. A Water Quality Management Plan or Basin Plan was completed for each of the six river basins in the state during the past year. These Basin Plans represent a great stride forward for Iowa's Water Quality Management Program in that they compile, for the first time, all the data and information available on all point sources (those reaching the water through a pipe) in the state. The plans present an overall strategy to control point sources in accordance with the federal requirements that call for secondary treatment for all municipalities and best practical treatment for all industries by July 1, 1977.

Following public hearings at several locations across the state, the plans were approved by the Water Quality Commission and submitted to the U.S. Environmental Protection Agency for approval.

7. The Basin Plans are considered to be Phase I of an overall water quality planning effort. Phase II, commonly referred to as the Continuing Planning Process (CPP), was initiated during the reporting period through the development of a work plan detailing how DEQ will carry out the planning called for in Section 208 of the 1972 Federal Water Pollution Control Act. In the fall of 1976, federal funds, granted through the U.S. Environmental Protection Agency, will be awarded to DEQ to support this statewide planning effort which will develop a management plan to protect Iowa waters for a 20-year period. The CPP effort, to be completed by November 1, 1978, will result in recommendations of measures to provide water clean enough to support swimming and fishing in all Iowa waters. The final document will include information on wastewater treatment works that are needed; programs necessary to coordinate activities such as construction and modification of treatment facilities; people who are responsible for putting the plan into action; means of defining and dealing with nonpoint sources of pollution; methods for disposal of the residue and treated wastewater resulting from the treatment process; and other information such as financing arrangements, time requirements, cost of implementing the plans and any economic, social and environmental effects or impacts.

Two unique features will be part of CPP. One is that the planning will be done as a joint effort of DEQ and the Department of Soil Conservation (DSC). Under contract with DEQ, DSC will do the major portion of the investigation and planning related to nonpoint pollution.

DEQ & DSC will work jointly to control non-point water pollution in Iowa.

The two agencies will also work jointly to assure that the second unique feature, citizen participation, is accomplished. The general public will have the opportunity to be involved in and comment on the planning, as is true of all DEQ activities; additionally, citizen advisory committees will be an integral part of each element of the planning process. During the fall of 1976, citizen advisory committees will be established; six of the committees will represent areas of the state and the seventh will be a state-wide group comprised primarily of representatives of the six area committees. Unlike any other form of citizen involvement in DEQ, these

committee members, 129 in all, will be reimbursed for all expenses incurred in work with DEQ.

Operator Certification

8 A key to safe drinking water or clean water in our streams is a **well qualified operator** in charge of the treatment facilities. Iowa has an operator certification program to assure that the operators of the water supply and wastewater treatment facilities are well trained and proficient. Every publicly owned treatment facility must be operated under the direct supervision of a certified operator.

The Water Quality Commission has the rule making authority for the operator certification program. In addition, there is a certification board with five members appointed by the Governor which oversees the management of the certification program. These five members are: ***Keith Bridson, West Des Moines; Beverly Everett, New Sharon; Domenic Morrow, Des Moines; Harris Seidel, Ames; Vernon Spilker, Missouri Valley.***

An examination is required before a person can receive certification. Certification is for a one-year period; however, as with driver's licenses, certification can be renewed each year without reexamination unless the person lets the certification expire or wishes certification at a high level. During the reporting period, 459 new certificates were issued out of the 832 examinations given; 3,461 certificates were renewed during the same period.

Free Training Programs

9 Several training programs are available to water supply or wastewater treatment plant operators who want to upgrade their professional rating or for people who want to enter the field. These courses are offered through the professional organization, the Iowa Water Pollution Control Association, and through the state universities and some community colleges. However, these courses do cost money which makes it difficult for people who are presently unemployed or underemployed to enter this professional field. With these people in mind, DEQ requested and obtained a grant from the U.S. Department of Labor totaling $145,684 to support an environmental occupation training program. The program consisted of training courses in the operation of water supply and wastewater treatment facilities and also offered courses in the operation of sanitary landfills. Close to 500 individuals participated in this training program; many of these participants already work in the environmental occupation field; however, many were people who have previously been unemployed or underemployed and want to enter this field.

10 Both the State and Federal governments have grant programs to assist municipalities in paying for construction of wastewater treatment facilities. These grants are administered by the Water Quality Commission through the adoption of procedure rules and priority criteria.

Federal grants are available to pay 75% of the eligible cost of a construction project. Current state legislation allows for 5% state participation. The local community then pays the remaining 20% of construction costs.

At the beginning of fiscal year 1976, DEQ had on file 303 applications for federal funds. During the fiscal year, 118 additional applications were received. DEQ recommended to the U.S. Environmental Protection Agency approvals of 283 applications, 39 of which were for communities which do not presently have treatment facilities or collection systems.

The U.S. Environmental Protection Agency, the construction grant allocating agency, made grant offers to 251 communities during the fiscal year with the grant offers totalling more than $74 million (see Table IV).

State 5% grants were awarded for 28 projects during the reporting period. These grants are listed on Table II.

Federal construction grants are divided into three steps: Step I grants pay for studies of present systems and need for improvement or addition; Step II grants pay for actual design of the construction work; Step III grants pay for construction costs. The majority of grants offered by the U.S. Environmental Protection Agency during the past fiscal year were for Step I work. Graph III shows the actual number and the comparison, based on projection, of Step I, II, and III grants during fiscal years '73 - '79. While Step I and II grants do result in money coming into Iowa, the greatest beneficial economic impact is received through the Step III grants when the actual construction is taking place. Iowa's construction industry has received a boost from wastewater treatment construction work during the past year and the boost will be even greater during the next few years.

During the reporting period, actual construction took place on 97 projects in the state. Construction work was completed on 25 facilities. These 25 are listed on Table III.

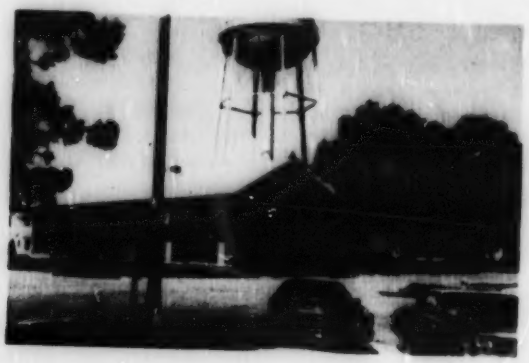


Table II

STATE 5% GRANT OFFERS

July 1, 1975 - June 30, 1976

Project	Grant
Arcadia	$ 11,310
Barnum	8,170
Batavia	12,300
Boxholm	7,930
Bridgewater	9,070
Clare	5,280
Davenport (Div. "D & E")	502,560
Davenport (Div. "F")	198,920
Farmington	15,960
Fort Madison Municipal Water Works	46,210
Garwin	6,200
Grafton	9,630
Harlan (02)	14,350
Harlan (03)	105,090
Henderson	8,970
Hudson	65,640
Jefferson (02)	7,660
Keokuk	318,420
Marshalltown	9,890
Osceola	116,880
Pilot Mound	6,070
Richland	18,340
Rutland	5,770
Sioux City	1,620,370
Spencer	369,580
Wesley	9,550
West Liberty (02)	4,450
Woolstock	13,340
Total	$3,527,910

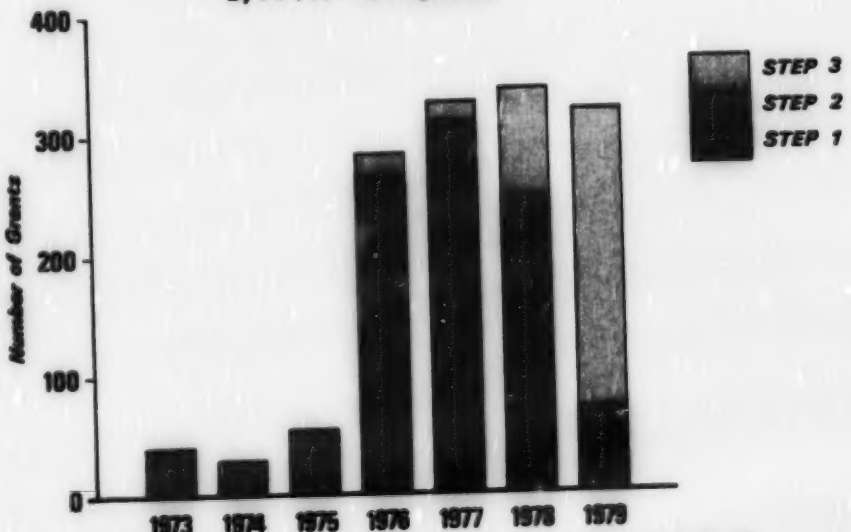
Table III

CONSTRUCTION PROJECTS COMPLETED

July 1, 1975 - June 30, 1976

Allerton
Amana Sanitary District
Bancroft
Camanche
Davis City
Eldon
Fort Dodge (Airport Commission)
Gilbertville
Holland
Hopkinton
Iowa Great Lakes Sanitary District
Knoxville
Lidderdale
Manly
New Hampton
Parkersburg
Peterson
Pierson
Polk City
Rhodes
Scott County Conservation Board
Truro
Wadena
Waterloo
Williamsburg

MUNICIPAL CONSTRUCTION GRANT PROJECTS
By FY ('77-'79 Projected)



Graph III: Shows the actual and the projected number of municipal construction grant projects for the fiscal years of 1973 through 1979.

Table IV

FEDERAL CONSTRUCTION GRANTS

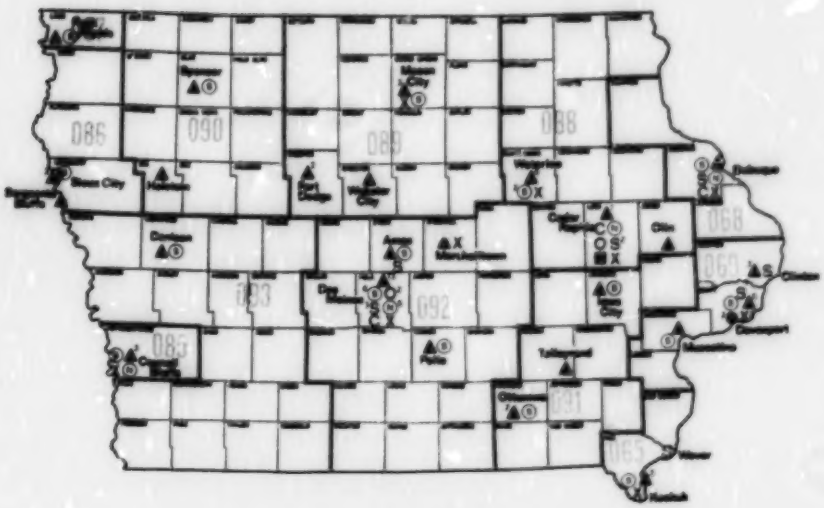
July 1, 1975 - June 30, 1976

Project	Step	Grant
Ackley	1	$ 18,000
Adel	1	12,750
Akron	1	2,470
Albert City	1	17,920
Albia	1	9,800
Albion	1	13,350
Algona	1	9,000
Alta	1	9,750
Alta Vista	1	4,500
Altoona	1	112,500
Ames	1	356,170
Anita	1	10,120
Ankeny	1	144,520
Aplington	1	8,270
Arcadia	2/3	188,570
Atlantic	1	33,750
Auburn	2	15,000
Audubon	1	24,750
Batavia	2/3	184,500
Baxter	1	5,820
Bellevue	1	13,500
Belmond	1	13,200
Bennett	1	6,970
Birmingham	1	5,920
Blue Grass	1	11,250
Bloomfield	1	12,070
Boone	1	37,500
Boxholm	2/3	118,500
Boyden	1	2,850
Bridgewater	2/3	135,970
Britt	1	10,500
Brooklyn	1	2,620
Calumet	2	7,050
Cascade	1	9,000
Cedar Falls	1	12,000
Cedar Rapids	3	131,550
Center Point	1	27,487,570
Charles City	1	7,500
Charlotte	2	83,300
Chester	1	14,250
Clare	2/3	142,650
Clarence	1	79,120
Clarinda	1	9,300
Clarion	1	81,120
Clear Lake Sani. Dist	1	12,000
Cleghorn	1	18,750
Clermont	1	2,920
Coggon	1	6,800
Coin	2	6,800
Colfax	1	7,500
Colo	1	12,370
Columbus Junction	1	9,000
Coon Rapids	2/3	6,000
Coralville	1	671,250
Corning	1	20,620
Correctionville	1	12,000
Creaco	1	10,870
Creston	1	18,200
Crystal Lake	1	51,750
Cushing	1	5,620
Dallas	1	3,300
Dallas Center	1	7,800
Danville	1	17,250
Davenport (Div. "D&E")	2/3	4,870
Davenport (Div. "F")	2/3	7,538,400
Dayton	1	854,720
Decorah	1	4,800
Denison	1	14,250
Denver	1	19,570
Des Moines	1	5,620
DeSoto	1	177,220
Diagonal	1	2,700
Dike	1	2,470
Donnellson	1	8,000
Dows	1	4,870
Dyersville	1	7,270
Earlham	1	16,500
Earlville	1	24,370
Edgewood	1	6,070
Eldon	1	12,000
Eldora	1	9,000
Eldridge	1	17,320
Elk Horn	1	12,000
Essex	1	7,870
Fairbank	1	$ 4,310
Fairfield	1	7,420
Farley	1	84,970
Farmington	2/3	6,750
Fonda	1	230,400
Fort Dodge	1	11,250
Fredericksburg	1	51,370
Garwin	2/3	16,060
Gilbert	1	93,000
Gladbrook	1	8,250
Gladstan	1	5,430
Graettinger	1	5,400
Grafton	2/3	4,950
Grand Junction	1	134,170
Granger	1	5,400
Greene	1	14,700
Grimes	1	13,870
Grinnell	1	20,470
Griswold	1	33,450
Guthrie Center	1	4,500
Harlan	3	8,850
Hartley	1	1,498,420
Hedrick	1	4,500
Henderson	2/3	4,870
Hills	1	134,470
Holstein	1	6,000
Homestead Sani. Dist	1	2,470
Hornick	1	7,720
Hudson	2/3	4,120
Hull	1	984,520
Huxley	1	4,950
Ida Grove	2	3,450
Indianola	2	80,750
Inwood	1	186,500
Iowa City	1	3,300
Iowa Falls	1	92,250
Iowa Great Lakes Sanitary District	1	11,020
Irwin	1	40,870
Jesup	1	2,250
Kalona	1	3,750
Kelley	2	8,250
Kellogg	1	12,520
Keosauqua	1	20,620
Keota	1	9,900
Kiron	1	7,120
Knoxville	1	2,700
Lake City	1	23,680
Lake Park	1	3,820
LaPorte City Mun. U.H.	1	9,000
Larchwood	1	63,150
Larrabee	1	3,300
Laurens	1	1,200
Lawton	1	6,370
LeClaire	1	3,300
Leland	1	24,370
LeMars	1	6,000
Letts	2/3	7,420
Libertyville	1	253,720
Lime Springs	1	3,150
Linn Grove	1	4,500
Lockridge	1	4,500
Luther	2	3,300
McGregor	1	12,800
Madrid	1	12,000
Manning	1	9,900
Maquoketa	1	18,600
Marcus	1	4,120
Marengo	1	7,420
Marquette	2/3	12,070
Marshalltown	1	410,920
Marshalltown (Solids)	2/3	76,870
Maxwell	1	148,270
Maysville	1	9,750
Meriden	1	4,120
Mitchellville	1	1,200
Mondamin	1	39,300
Monmouth	1	5,620
Monona	1	3,600
Monroe	1	17,100
Montezuma	1	9,750
Monticello	1	12,000
Moorhead	2	11,250
Morley	1	22,120
Mt. Pleasant	1	$ 2,470
Mount Vernon	1	18,000
Mystic	1	14,250
Nashua	1	3,300
Nevada	1	10,720
New London	1	12,900
New Sharon	1	9,900
Newell	1	8,620
Newhall	1	2,560
Nora Springs	1	8,620
North English	1	6,150
Northwood	1	9,000
Oakland	1	14,620
Odebolt	1	5,320
Oelwein	1	3,750
Ogden	1	98,250
Ollie	1	5,020
Onawa	1	3,300
Orange City	1	10,060
Osceola	2/3	9,070
Oskaloosa	1	1,783,120
Pacific Junction	1	22,400
Palo	1	4,950
Patterson	1	5,920
Paullina	1	1,120
Pella	1	2,470
Perry	1	41,000
Persia	1	17,470
Pilot Mound	3	1,870
Portsmouth	1	83,700
Postville	1	4,500
Prairieburg	1	7,500
Protivin	1	2,400
Red Oak	1	9,150
Richland	2/3	55,120
Riverside	1	275,020
Robins	1	9,450
Rock Valley	1	4,120
Rockwell City	1	4,950
Rowley	1	30,200
Rutland	2/3	5,170
Sabula	1	98,560
St. Ansgar	1	13,500
St. Charles	2/3	8,620
Salix	2	250,270
Sanborn	1	9,750
Scranton	1	10,500
Seersboro	2	5,170
Shenandoah	1	12,450
Sibley	1	15,000
Sidney	1	60,000
Sigourney	1	4,500
Sioux City	3	12,070
Soldier	2	24,305,550
Springville	1	6,150
Stacyville	1	7,120
Steamboat Rock	1	8,620
Story City	1	5,170
Sully	1	18,750
Sumner	1	6,670
Toledo	1	8,280
Traer	2/3	6,750
Treynor	1	443,100
Troy Mills Sani. Dist	1	2,700
Van Horne	1	3,750
Washington	1	5,770
Washta	1	33,000
Waterville	1	8,370
Waverly	1	4,870
Wellman	1	16,500
Wesley	2/3	8,250
West Branch	1	159,670
What Cheer	1	39,970
Wheatland	1	9,070
Whittemore	1	7,830
Whitten	1	6,000
Winfield	1	3,600
Winterset	1	3,750
Winthrop	1	74,100
Woodbine	1	6,000
Woodward	1	13,500
Woolstock	2/3	6,820
		200,100
	TOTAL	$74,992,900

Monitoring

AIR MONITORING STATIONS

(Operating during 1976)



MONITORING EQUIPMENT

- ▲ Particulate Hi-Volume
- X Particulate - Tape
- ⑤ SO_2 Bubbler
- S SO_2 Continuous
- ⓝ NO_X Bubbler
- C CO Continuous
- ● Total Oxidants
- O Ozone
- ■ Total Hydrocarbons

The number nearest symbol indicates multiple monitors of that type.

Monitoring is a mandatory portion of an environmental program as it is impossible to know what problems need to be handled or what progress is being made through control programs without the information gathered in a monitoring program.

DEQ has limited air and water monitoring programs, both conducted under contract with the State Hygienic Laboratory at the University of Iowa.

The **air monitoring** network is comprised of monitoring sites where one or more pollutants are measured (see map). Samples collected at these sites are analyzed by the State Hygienic Laboratory (SHL). The SHL also periodically visits the monitoring sites, calibrating the equipment. The monitoring equipment is located at sites such as water treatment plants, fire stations, local health department offices and schools. For the most part, the samples are collected and sent to the SHL by people who work at these places and volunteer their services.

During the reporting period, an expert, working under contract, reviewed the air monitoring program and prepared recommendations on location of monitoring sites and prepared operating manuals for the people who collect the samples.

The surface **water monitoring** program centers around 36 permanent monitoring sites (see map). Samples are collected from these stations four times each year by the SHL staff. Attempts are made to assure that the four samples are taken at times with differing river conditions - low flow, high flow, ice cover - to obtain a broad spectrum of data and to be able to assess the quality of the water under adverse as well as favorable conditions.

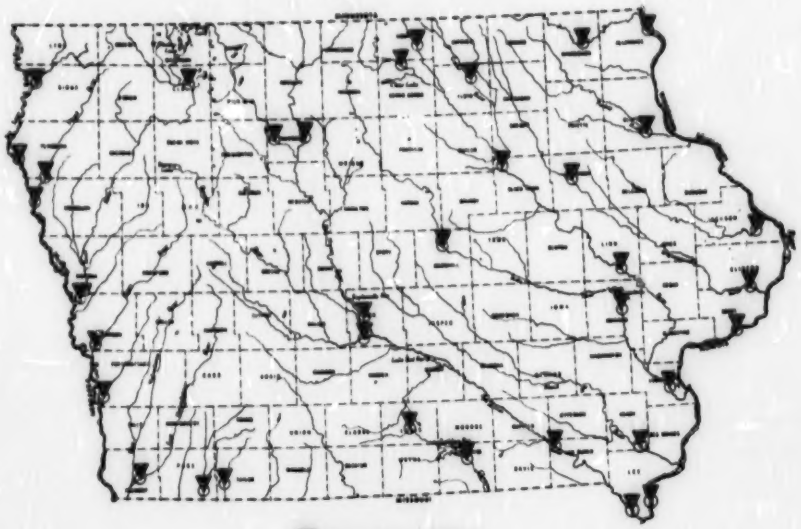
The water quality data obtained from the permanent station monitoring program is augmented by data collected on special field investigations. These studies, performed by SHL staff, provide detailed information on an entire river segment as opposed to the "one spot in the river" information provided by the permanent sites.

Special studies were conducted on the following streams during the '76 fiscal year:

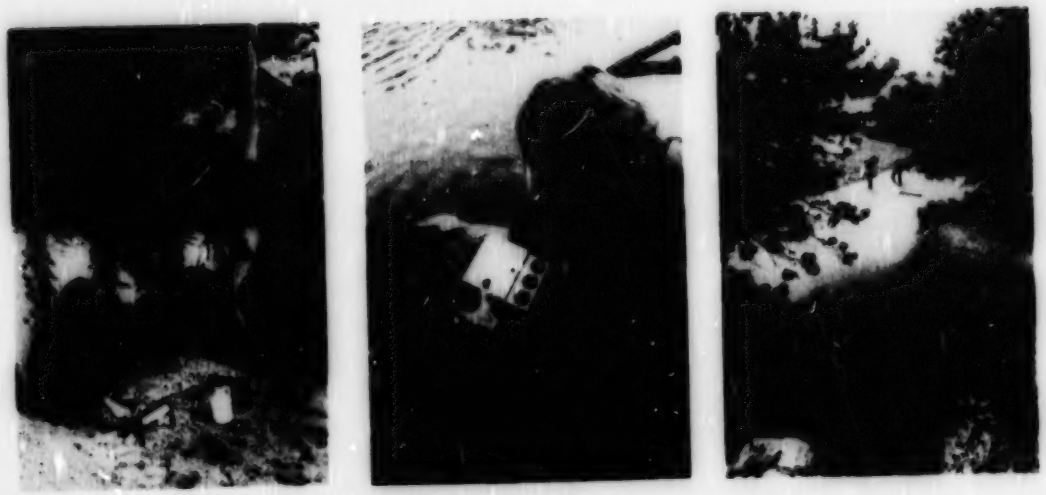
Turkey River (two studies)
Little Skunk River (two studies)
Winnebago River
Iowa River (above Tama) (two studies)
Boone River
South Skunk River
Maple River
Wolf Creek
South & Middle Raccoon River
West Fork Cedar River
Maquoketa River

Copies of the reports based on these investigations are available from the State Hygienic Laboratory in Iowa City.

36 SAMPLING STATIONS ON SELECTED STREAMS IN IOWA



Sampling Station



Dissolved oxygen and pH are being checked by these specialists on the South Fork of the Iowa River near Gifford in Hardin County.

Rules

Each commission is responsible for adopting rules necessary to implement the law. As the need for new rules or revisions to existing rules develops, draft rules are taken before the public through a hearing, reviewed and adopted by the appropriate commission, approved by the Executive Committee and reviewed by the other branches of state government as required by Chapter 17A of the Code of Iowa.

During the reporting period the following new rules or revisions were adopted:

A. Each of the four program commissions and the Executive Committee adopted rules implementing the requirements of the Administrative Procedure Act. These rules delineate the methods of operation followed by the policy making bodies and by the DEQ staff.

B. The Air Quality Commission adopted rules revising upward the sulfur dioxide emission standards for sources in 89 counties. The standards were unchanged in the remaining 10 counties. (See map for county identification.) These rules were based on the findings of the sulfur dioxide monitoring study which is further explained in the Program Section of this report.

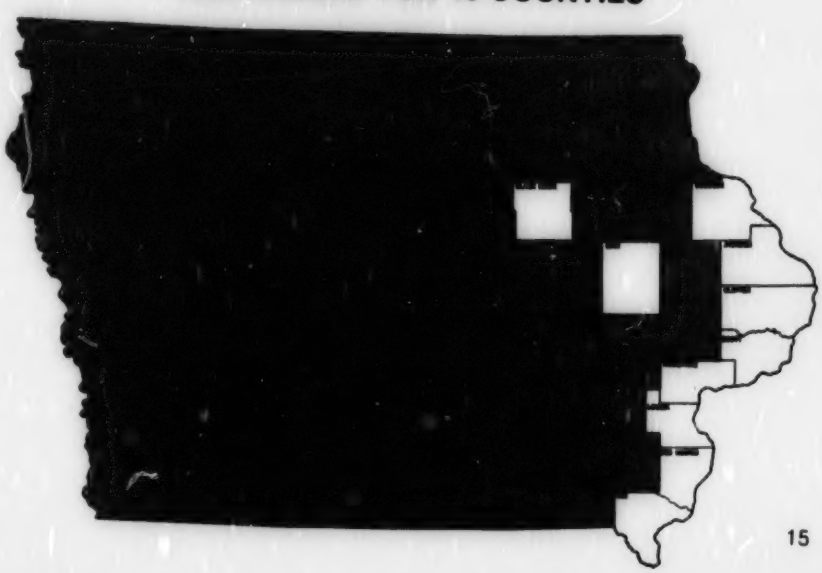
C. The Air Quality Commission also adopted rules making the federal New Source Performance Standards part of Iowa's Air Pollution Control Program.

D. The Water Quality Commission amended the rules relating to the Operator Certification Program. These amendments were made to conform to the requirements of recently passed state legislation which requires that the fees charged to persons applying for certification be based on the money needed to cover the administrative costs of the program. The newly adopted rules institute a new examination fee and also change some of the procedures involved in the examinations, certification and renewal of certification.

E. The Water Quality Commission also revised the water supply rules. The major changes in the rules are: 1) additional criteria for the construction of new water supplies, 2) the requirement of continuous disinfectant at all new water supplies (with a few exceptions) and at any supply that does not meet bacterial standards, and 3) the inclusion in the rules of any policies which have been used by the department when reviewing any aspect of water supplies but were not part of the rules.

Neither the Chemical Technology nor Solid Waste Disposal Commission adopted any new or revised rules other than those mentioned in A.

SULFUR DIOXIDE EMISSION STANDARDS UNCHANGED FOR 10 COUNTIES



Permits

DEQ's primary mechanism for controlling pollutants in order to protect the environment is the requirement that a permit be issued prior to the construction or operation of any pollution control facility. Issuance of a permit is based on a thorough review of the engineering plans and specifications with respect to the appropriate standards, rules and criteria.

During the reporting period the following numbers and types of permits were issued:

A. The Air Quality Management Division issued 428 permits to construct new equipment or related control equipment. The control equipment for which these permits were issued will reduce the potential uncontrolled emissions by 220,813.8 tons per year. (Enough to fill 2,208 railroad cars.)

B. The Land Quality Management Division issued 31 permits for sanitary disposal projects. This brings the total of permitted sites in Iowa to 108 serving 92.6% of the population. The map on page 16 shows the locations of the permitted sites.

C. The Water Quality Management Division issued the following permits:

WASTEWATER COLLECTION AND TREATMENT SYSTEMS
518 permits for construction
376 permits for operation

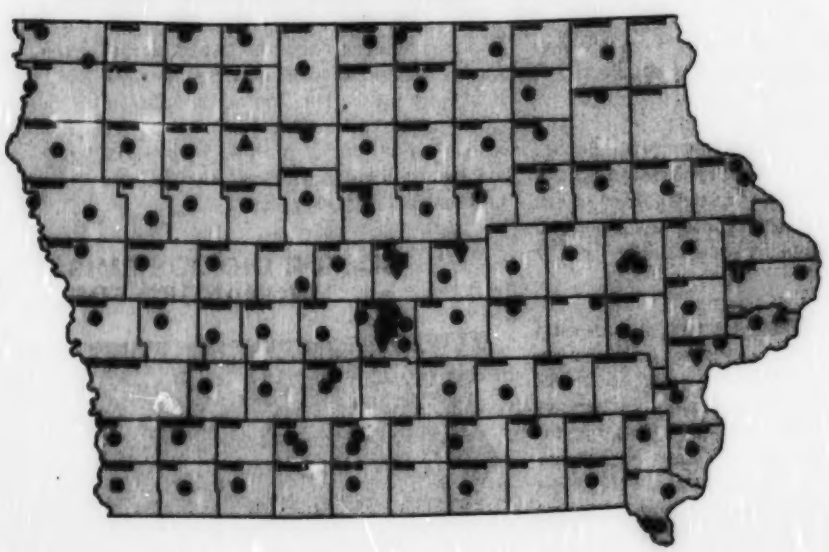
LIVESTOCK FEEDING FACILITIES
156 permits for construction
166 approvals for construction

(Sites which do not require extensive construction activity to control the pollution problems are not required to submit extensive engineering plans and are issued an approval letter rather than a permit.)

244 permits for operation
217 require that no discharge occur
27 do permit a discharge based upon permit conditions

WATER SUPPLY FACILITIES
411 approval notices for construction

SOLID WASTE DISPOSAL PERMITS



TYPE OF PERMIT:

- ● Sanitary Landfill
- ■ Recycling
- ▲ Transfer Station
- ⬢ Compositing
- ▼ Construction and Demolition

Enforcement

The enforcement procedure is initiated when any source of pollution or treatment facility is in violation of the law, the rules or permit requirements if applicable. The procedure consists of an initial notification of violation and informal negotiation in an attempt to resolve the problem. If negotiation is unsuccessful, referral to the appropriate commission follows. Referral to the Attorney General is the last step and is taken only if the commission and the source are unable to agree or if continued violations occur despite an agreement. The right to a hearing and court review is an integral part of the enforcement process.

Most environmental problems are solved through negotiation, limiting the need to initiate formal enforcement procedures.

Most problems and violations are settled through negotiation. Each of the permits on the preceding page could have become an enforcement case if the owners of the source had not chosen to comply with the environmental requirements voluntarily. Iowa citizens, private and corporate, have a long history of supporting and voluntarily complying with environmental laws and regulations.

Regional Offices

The environmental management programs of DEQ are taken to the people of Iowa through the Department's six regional offices. (See map for the location of these offices and the areas they serve.) The Executive Director relies on the regional staff to provide information on the environmental activities in each region and monitor compliance with orders of the commissions or the Executive Director. The regional staff also provides the Executive Director and commissions first hand information on environmental problems in Iowa and ensures that policies and programs are being carried out most efficiently and effectively.

To many Iowans, this regional staff is the Department of Environmental Quality. These people have a greater degree of direct personal contact with the citizens of Iowa than any other group in the Department. The quality of these contacts directly affects the ability of the Department to carry out its environmental programs and therefore directly affects the quality of life in Iowa.

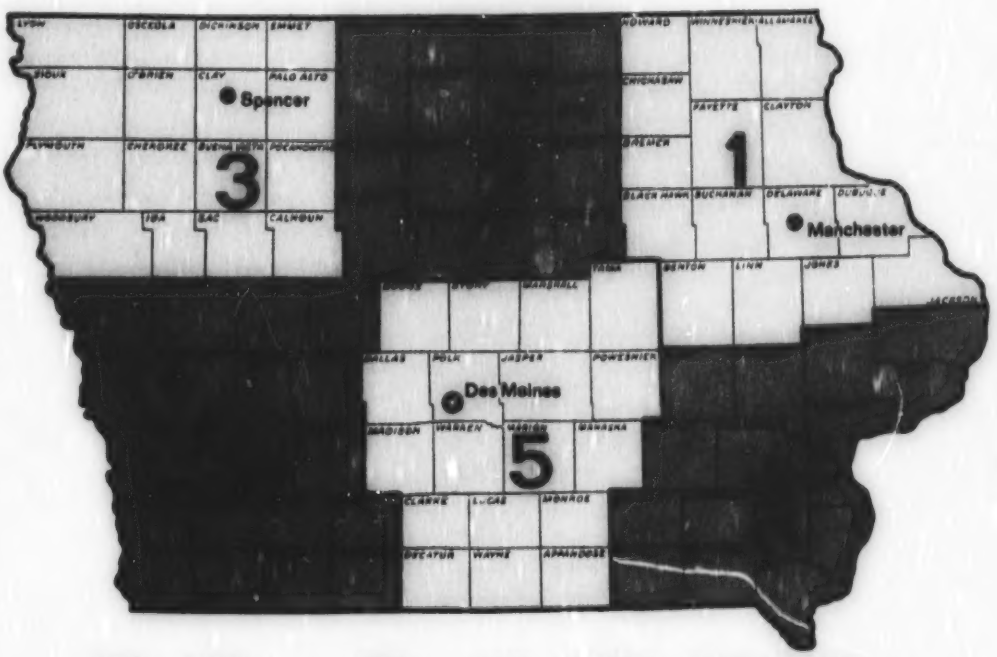
The Department's regional staff plays a primary role in DEQ's technical assistance activities. They provide on-site advise to consultants, treatment facility operators, engineers, representatives of industry and commerce, public officials, and individual citizens on environmental problems and environmental control techniques.

One of the principal duties of the regional office staff is the performance of investigation and surveillance activities. Almost all problems or emergencies in the state are responded to by the staff in the regional offices. With very few exceptions, they also perform all of the inspections. These responses and inspections numbered over 3,000 during fiscal year 1976.

While most of the staff in the central office work in one program area, the regional office staff is trained in many facets of DEQ's programs. A day might include responding to a hazardous waste spill in the morning, inspecting a sanitary landfill and a water supply treatment plant in the afternoon, and attending a city council meeting to explain problems that need to be corrected at the local wastewater treatment plant in the evening.

The regional office staff also serve as expert witnesses when enforcement actions must be taken before the commissions or resolved in court.

REGIONAL OFFICES



REGION	LOCATION	ADDRESS	P. O. BOX	TELEPHONE NO.	REGIONAL ADMINISTRATOR
1	MANCHESTER-52057	209 NORTH FRANKLIN ST.		319/927-2640	JERRY L. RATTENBORG
2	MASON CITY-50401	450 NORTH FEDERAL	1443	515/424-4073	WILLIAM J. MEEKER
3	SPENCER-51301	401 GRAND AVE., SUITE 24	270	712/262-4177	JOHN METCALFE
4	COUNCIL BLUFFS-51501	532 FIRST AVE., SUITE 204		712/328-3194	R.W. GROTE
5	DES MOINES-50309	317 E. 6th ST., SUITE 21	6160	515/281-3822	JACK W. CLEMENS
6	WASHINGTON-52353	111½ NORTH MARION	27	319/653-2135	EARL C. VOELKER, SR

Table V

DEPARTMENT OF ENVIRONMENTAL QUALITY
EXPENDITURE SUMMARY
FISCAL YEAR 1975

Program	Total Expended	Per Capita (2.8 Million)	State Share	State Share Per Capita (2.8 Million)
Air Quality	$ 642,521	23¢	$ 203,009	8¢
SO2 Study	128,442	5	128,442	5
Solid Waste	231,872	8	146,061	5
Chemical Technology	40,828	1	30,828	1
Regional Office Program	354,687	13	354,687	13
Water Quality	1,078,871	39	256,904	9
Water Supply	178,035	6	178,035	6
Other Programs (a)	59,750	2	35,325	1
TOTAL	$2,715,004 (b)	97¢	$1,333,291	48¢

(a) Operator Certification, Radium Study, Des Moines 208 Contract, and Department Support Operations

(b) Includes State appropriation and Federal Grants and Contracts

Table VI

DEPARTMENT OF ENVIRONMENTAL QUALITY
EXPENDITURE SUMMARY
FISCAL YEAR 1976

Program	Total Expended	Per Capita (2.825 Million)	State Share	State Share Per Capita (2.825 Million)
Air Quality	$ 709,045	25¢	$ 252,547	9¢
Compliance Monitoring	638,916	23	638,916	23
Solid Waste	198,403	7	124,626	4
Radiation	45,809	2	45,809	2
Chemical Technology	48,334	2	48,334	2
Waste Water	893,276	32	226,441	8
Water Supply	236,047	8	118,413	4
Statewide 208	5,778	-	0	-
Other Programs (a)	206,611	7	35,984	1
TOTAL	$2,982,217 (b)	108¢	$1,491,070	53¢

(a) Includes: Hazardous Wastes, CETA, Salsbury, Operator Certification, and Des Moines 208.

(b) Includes: State Appropriation and Federal Grants and Contracts